Report
10/11/05

pH sensor:

We have performed several experiments to determine the system requirement for best results and to maximize sensor life. Following are our findings:

a) To maximize the sensor life flow rate should be around 60 ml/min.
b) Sensor housing should not be grounded.
c) Water that is passing through the sensor tip should be discarded in a drain or in a bucket. If we route the water that is passing through the sensor tip to the APS return water, it generates a backpressure. This backpressure not only reduces sensor life but also produce unstable data. Our experience also confirms this conclusion.
d) Inlet water pressure should be less than 100 psi.

Level of DO control in experimental water:

Oxygen sensors have been installed and calibrated. John Dench is working on the piping for the system to mix APS water and water from the reservoir. We are planning to start trial runs to check the system within a couple of days.

e) Initially, we have been routing the flowing water from the sensor to the APS return water. Although, initially we got a stable data from this arrangement with a new sensor, within one and half months data became very unstable. We concluded that the sensor was bad because the system started working with a new sensor. During the troubleshooting, in one of our experiments we started dumping the water in a bucket, the old sensor started producing very stable and accurate data.